Creating a kubernetes cluster in AWS console.

Pre-requisites:

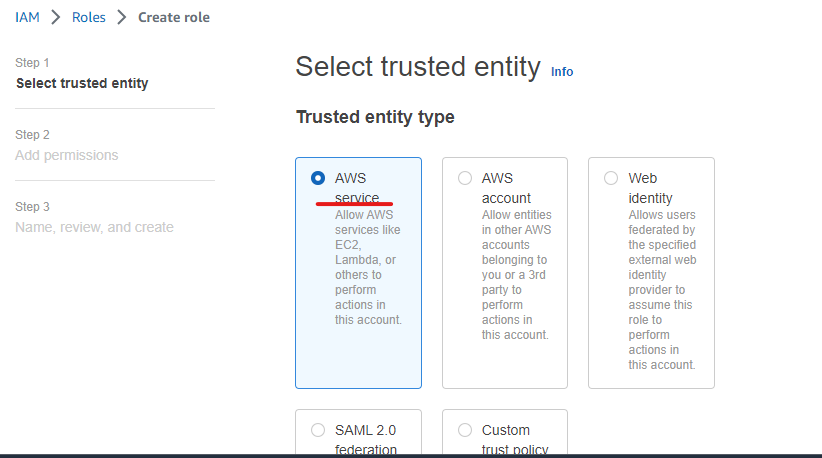
* Create two IAM roles
* Create a VPC for Amazon EKS Cluster.
* Create a cluster in EKS.
* Install chocolatey in windows machine.
* Install AWS cli and configure it.
* Create a Pod in that cluster

1. Create two IAM roles.

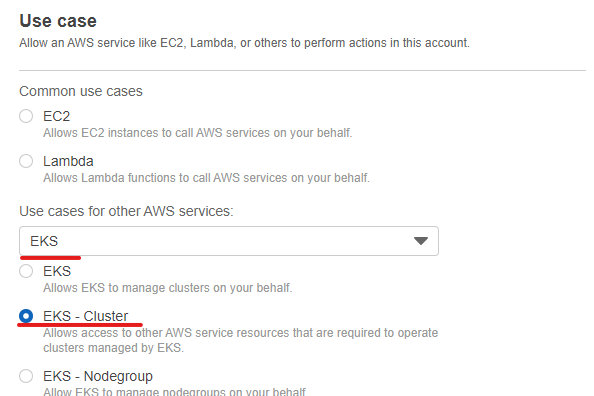
Create a role for cluster

Go to***IAM*** – In the side bar select ***Role*** – click on ***create role***

In the first step select trusted entity field ***select AWS service*** (BCZ we are giving permissions to a service)



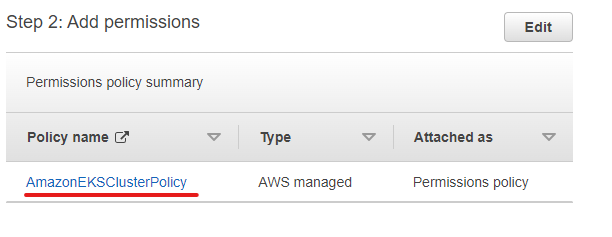
Now in USE CASE select ***EKS – EKS cluster – click on next.***



In trusted entities script will be look like this.

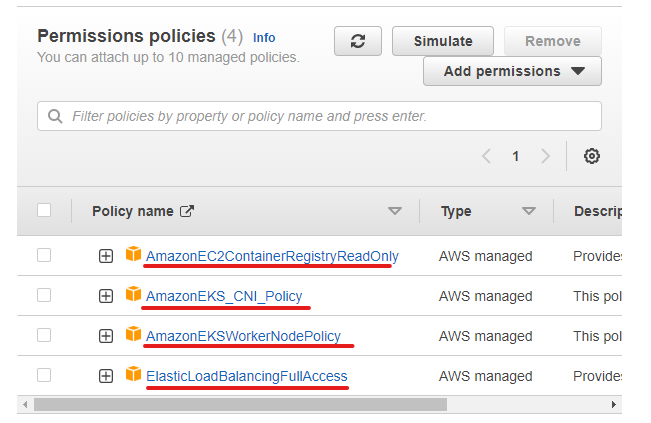


In the permissions section give ***AmazonEKSClusterPolicy – click on create role.***



Create a Role for compute plane node

Go to Roles – create another role – in policies give the following permissions which are mentioned in the below picture.



1. Create a VPC for Amazon EKS Cluster.

To create VPC infrastructure use cloud Formation service.

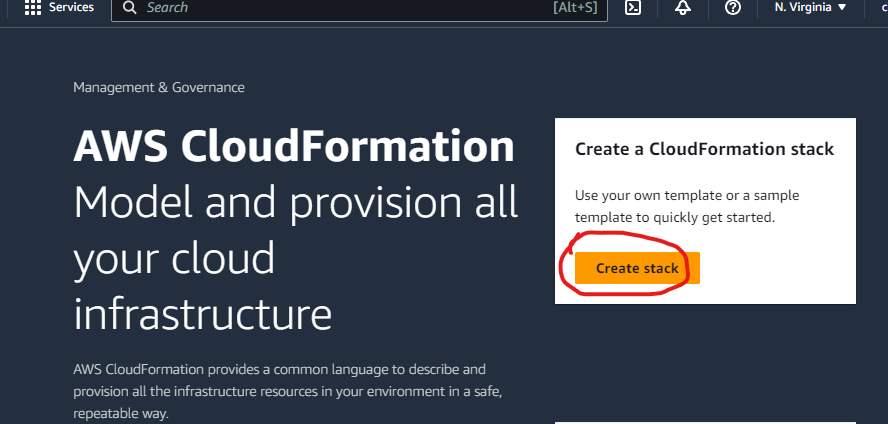
For creating a cluster in AWS console we need to create a separate network for it. For that follow the below steps.

Cloud Formation: It is a service which is used for creating the services in AWS console.

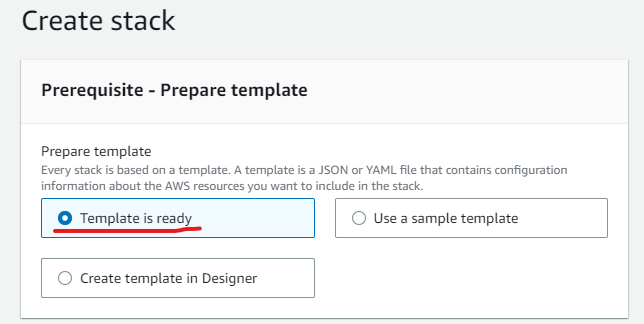
Creating a VPC for your Amazon EKS cluster refer the following document:

<https://docs.aws.amazon.com/eks/latest/userguide/creating-a-vpc.html>

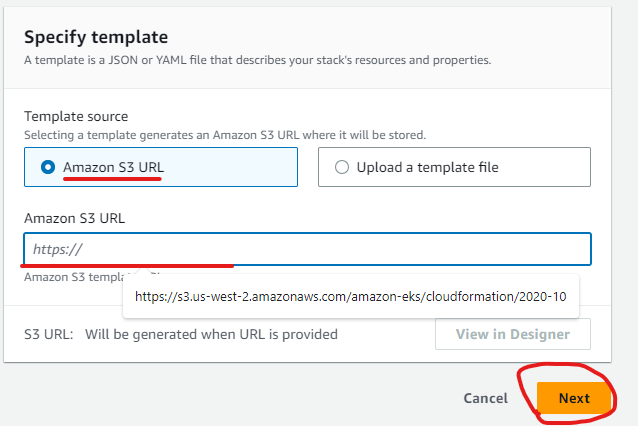
In the search bar search for ***cloud Formation*** – click on ***create stack*** -



In the First step select Template is ready (BCZ I’m using the s3 URL in which VPC creation template)

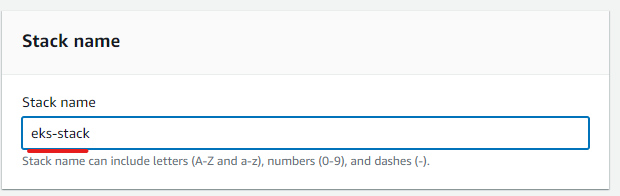


In the specify template section – For template source select ***Amazon s3 URL –*** In amazon S3 URL section paste the s3 URL which we copied from the reference doc – click on ***Next***

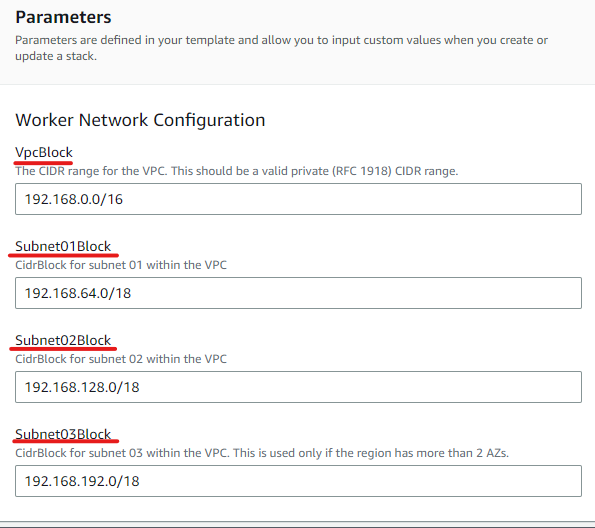


In the second step we need to specify stack details.

Give the stack name

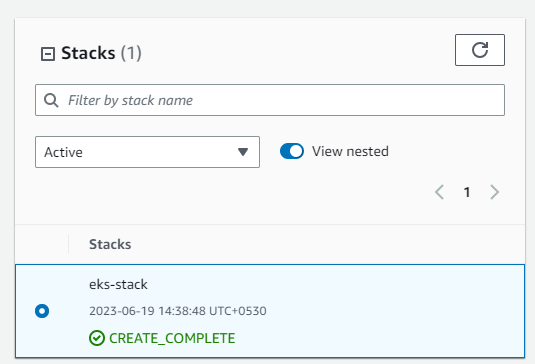


In the parameters section give the ***IP range of VPC*** – provide the ***subnets range*** – Then click on ***Next.***



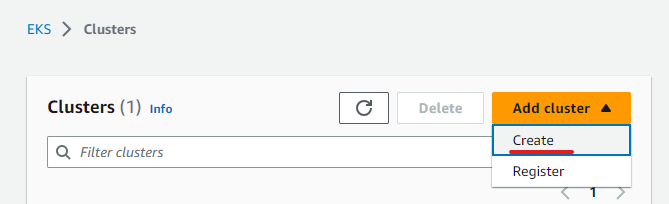
In the third step ***Configure stack options*** – no need to give any details go with default one as for our task – click on ***Next – Review the EKS stack –*** click on ***submit*** option.

After creating stack it will take few moments to get created\_completed status.

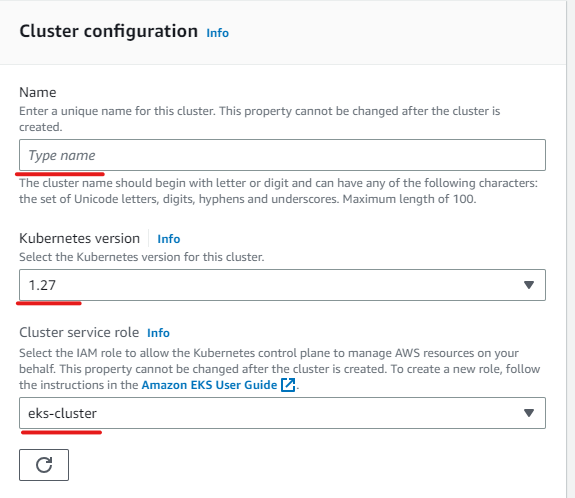


1. Create EKS cluster.

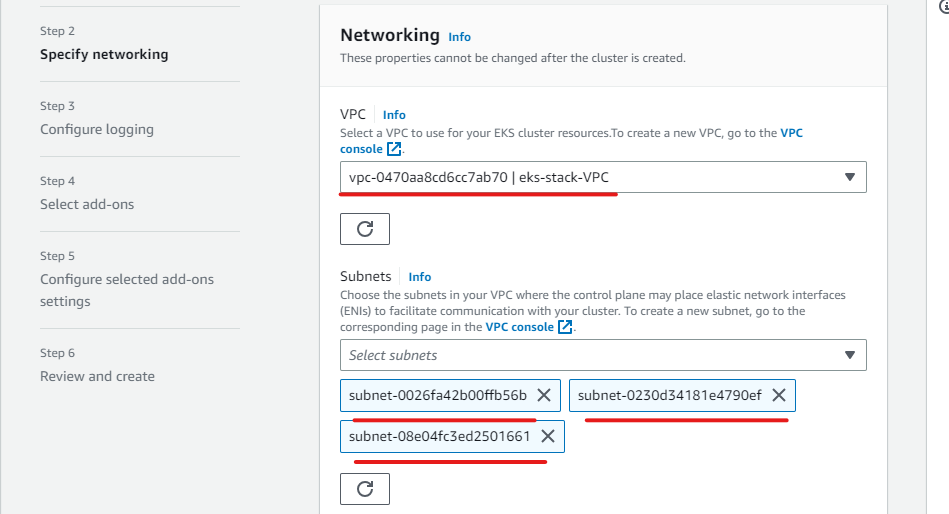
In the navigation Bar click on ***Add cluster*** – click on ***Create***



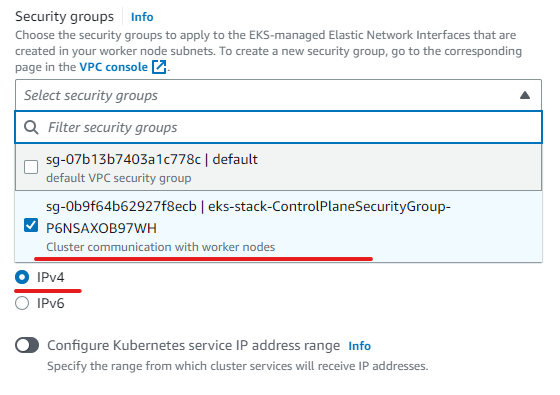
In the first step ***Cluster Configuration section*** – give the name of the cluster – select the ***kubernetes*** latest ***version*** – In the ***cluster service Role section*** select the role which we created for ***cluster –*** click on ***Next.***



In the next step ***Specify Networking details*** – select the ***eks-stack-vpc*** and ***subnets***

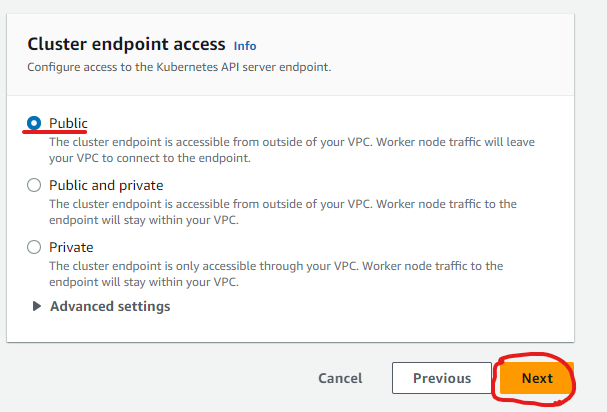


Select the Security group which belongs to ***eks-stack-VPC*** and select the IP address ***IPv4***

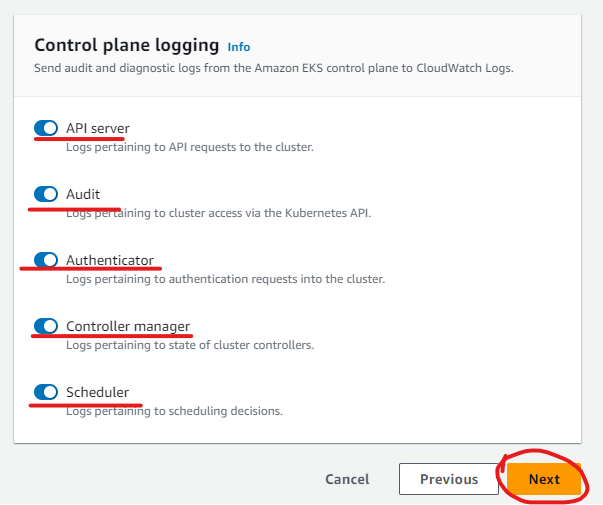


In ***cluster endpoint access*** section we have three options

Public, Public and Private, Private in these three options based upon our need select one as one I’m selecting ***Public*** – click on ***Next.***



In Control Plane Logging section enable ***API Server***, ***Audit***, ***Authenticator***, ***Controller manager***, ***Scheduler*** – Click on ***Next.***

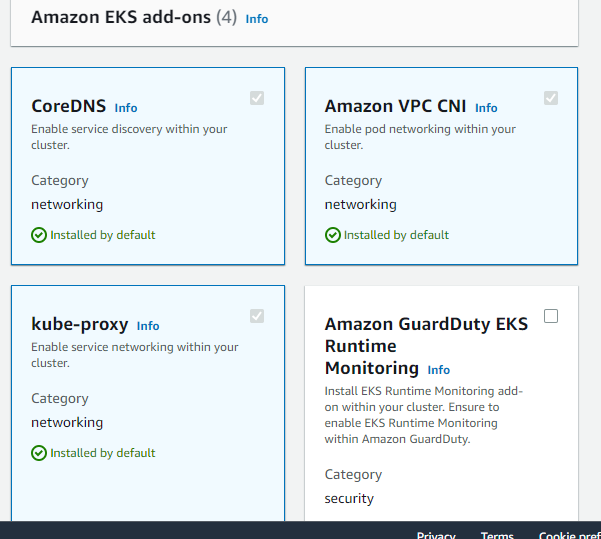


In the step 4 select Add-ons – Amazon EKS add-ons

Core DNS

Amazon VPC CNI

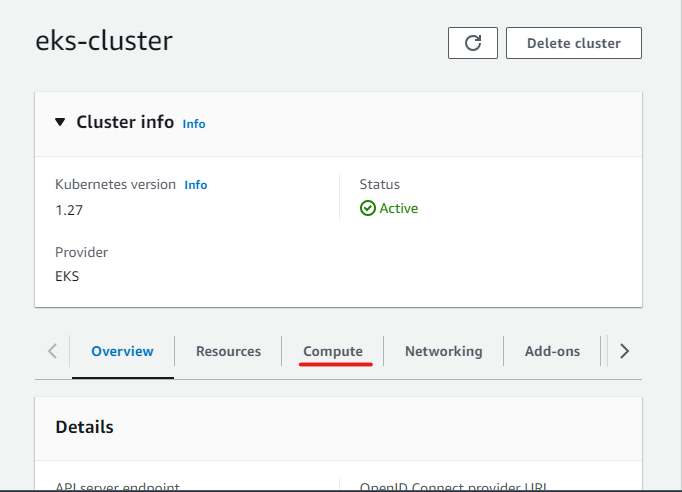
Kube-Proxy



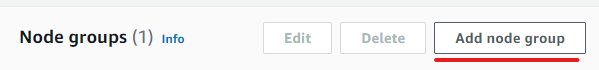
In the Fifth step Configure selected add-ons settings leave everything by default and the sixth step is Review and create – click on submit.

Now wait some time to get cluster created status.

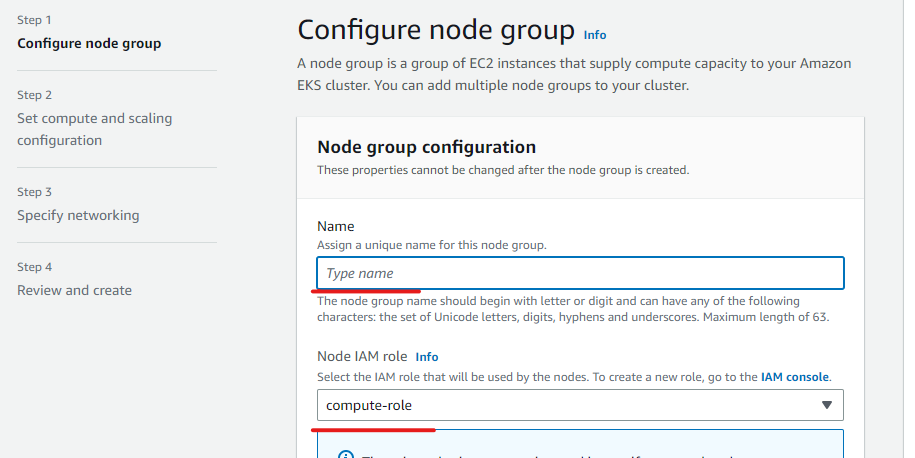
Go to inside of eks-cluster to create compute nodes – open compute option



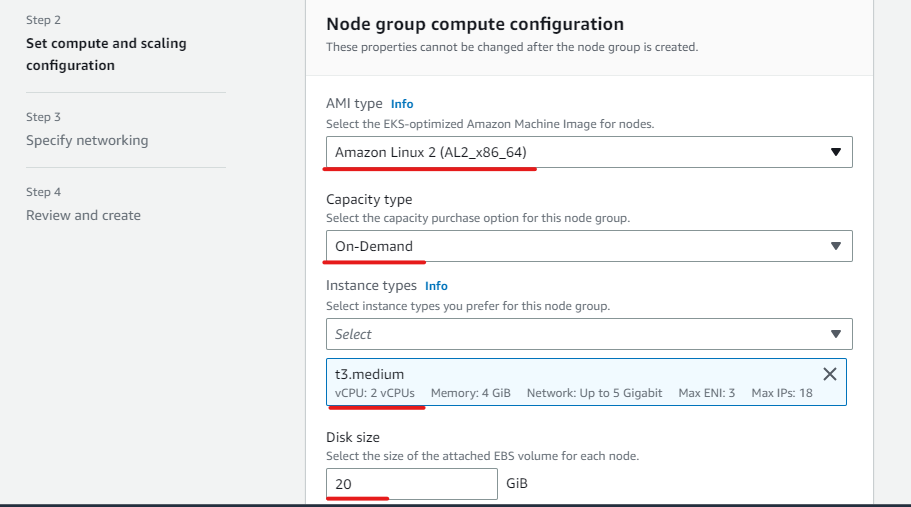
After going inside of compute option go to node Group – click on ***Add node group***



In the first step configure the node group. Provide the name to the node group – Provide the node IAM role which created in the first step with the name ***compute-role***



In the second step Set compute and scaling configuration. In AMI type provide the amazon Linux image – Capacity type ON-demand – Instance types t3.medium



* Login to AWS console – in the search bar type cloud Formation
* Before creating stack in cloud formation

**Reference:**

1. AKIAWE6VZCGVPBHUFVK7
2. 2xO4WVzZtRKESfn1E6VzI9sEpMyU8M6hVN68CmRk
3. https://docs.aws.amazon.com/eks/latest/userguide/create-kubeconfig.html
4. <https://docs.aws.amazon.com/eks/latest/userguide/creating-a-vpc.html>
5. <https://chocolatey.org/install>
6. <https://community.chocolatey.org/packages?q=kubectl>
7. <https://docs.aws.amazon.com/cli/v1/userguide/install-windows.html>

AdditionalRefernces:

1. <https://docs.aws.amazon.com/cli/v1/userguide/install-windows.html>
2. <https://docs.aws.amazon.com/eks/latest/userguide/create-kubeconfig.html>
3. <https://chocolatey.org/install>
4. <https://docs.aws.amazon.com/eks/latest/userguide/creating-a-vpc.html>
5. <https://www.google.com/search?q=k8s+volumes&oq=k8s+volumes&aqs=chrome..69i57j0i512l6j69i61.5567j0j7&sourceid=chrome&ie=UTF-8>
6. <https://kubernetes.io/docs/concepts/storage/volumes/>
7. <https://kubernetes.io/docs/concepts/storage/volumes/>